

Upland paddy and blackgram strip cropping technology for enhanced productivity in Eastern Ghats of Odisha, India

Praveen Jakhar¹, P.P. Adhikary², B.S. Naik³, Hombegowda H.C.⁴ and M. Madhu⁵

ICAR-Indian Institute of Soil and Water Conservation, Research Centre, Koraput, Odisha 763002, India

e-mail: icarpraveen@gmail.com

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ABSTRACT

A field experiment was carried out during the rainy seasons (July-October) of 2011, 2012 and 2013 at Koraput, Odisha, to assess the performance of upland paddy [*Oryza sativa* L.] and blackgram (*Phaseolus mungo* L.) based strip cropping in ratios 6:4, 8:4, 10:4 and 12:4. The experiment was laid out in 3 replications on sloping land in a randomized block design. Among the tested ratios, strip cropping of 10 rows of upland paddy (DSR) with 4 rows of blackgram (BG) steadily gave higher paddy equivalent yield (DSREY). In percentage terms, it was 9.3, 14.2 and 10.2% higher than sole DSR. Analysis of 3 years' data of DSREY indicates an average yield of 1330 kg/ha with an increase of 13.7 and 6.1% over 8:4 and 10:4 ratios, respectively. The maximum net returns of Rs 11,511 per ha were accrued from 10:4 DSR ratio, which was 28.7% higher than the net returns from sole DSR cultivation. The ratio also recorded highest benefit cost ratio (1.90). The superiority of strip ratio 10:4 was also reflected in the monetary advantage index and income-equivalent ratio, registering maximum values of 1750 and 2.50, respectively. Maximum value of land-equivalent ratio (1.18) was estimated in 10:4 ratio, indicating 18% area advantage over sole cropping. All the strip cropping systems were advantageous than sole planting systems as maximum values of K_{DSR} and K_{BG} , 2.12 and 1.28 respectively were obtained from 10:4 strip ratio, pointing greater advantage with highest K values (2.70).

Key words: Aggressivity, blackgram, strip cropping, upland paddy.